

The Common Core State Standards for Mathematics:

Will it Matter Ten Years From Now?

Looking Ahead by Looking Back

1894: *Report of the Committee of Ten on Secondary School Studies*

Key Recommendation: Algebra-Geometry-Algebra Sequence

1923: *The Reorganization of Mathematics in Secondary Education*

Key Recommendation: Integration of high school curriculum around the concept of function.

Reys, R., & Reys, B. (2011). The high school curriculum – what can we learn from history? *Mathematics Teacher*, 105(1), 9-11.

Looking Ahead by Looking Back

1950s- 1960s:

New Math Era

College Entrance Examination Board called for the strong preparation of students in both concepts and skills.

1970s: Back to the Basics

1980: NCTM Agenda for Action

Key recommendation: Problem Solving and 3 years of high school mathematics

Reys, R., & Reys, B. (2011). The high school curriculum – what can we learn from history? *Mathematics Teacher*, 105(1), 9-11.

Looking Ahead by Looking Back

1989 & 2000: NCTM

Curriculum and Evaluation Standards for School Mathematics

Principles and Standards for School Mathematics

Key recommendations: Content strands, content standards (grade bands), and mathematical processes

2006: NCTM *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics*

Key recommendation: Critical content areas for emphasis.

2009: *Focus in High School Mathematics: Reasoning and Sense Making*

COMMON CORE
STATE STANDARDS FOR

Mathematics



And now the CCSSM joins a long history of reform documents, but will it too simply become an historical footnote?

History is Not Encouraging

... Although some changes occur, they are usually much less grandiose than the recommendations that have been offered. In other words, when everything is said and done, generally much more is said than done.

Reys, R., & Reys, B. (2011). The high school curriculum – what can we learn from history? *Mathematics Teacher*, 105(1), 9-11.

Will the CCSSM Matter Ten Years From Now?

Perhaps the superficial response is that this latest reform effort will be different due to widespread adoption of the same set of standards (and of course PARCC and Smarter Balance).

These factors certainly change the conditions of reform, but they don't change one fundamental fact:

Improvements in teaching and learning can only come from a strategy focused on improving instruction.

Grade 1 Overview

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

This image is both hopeful and worrisome.

We Shouldn't Over-emphasize the "Left Side" of the CCSSM

Mathematics education in the United States has a long history of confidence in standards and curriculum programs as the primary means to improve student achievement.

Larson, M. R. (2009). A curriculum decision-maker's perspective on conceptual and analytical frameworks for studying teachers' use of curriculum materials. In J. T. Remillard, B. A. Herbel-Eisenmann, & G. M. Loyd (Eds.), *Mathematics teachers at work: Connecting curriculum materials and classroom instruction* (93-99). New York: Routledge Taylor & Francis Group.

We Must Focus on Instruction to Improve to Student Learning

We need to confront the fact that the single greatest determinant of learning is not socioeconomic factors or funding levels. It is instruction. A bone-deep, institutional acknowledgment of this fact continues to elude us.



Schmoker, M. (2006). *Results now: How we can achieve unprecedented improvements in teaching and learning*. Alexandria, VA: Association for Supervision and Curriculum Development.

The CCSSM Presents a New Opportunity

If the focus of implementation is only on the content standards, any change is likely to be superficial.

However, the CCSSM calls for a different, in some cases radically different, way of approaching the content, embodied in part in the Standards for Mathematical Practice.

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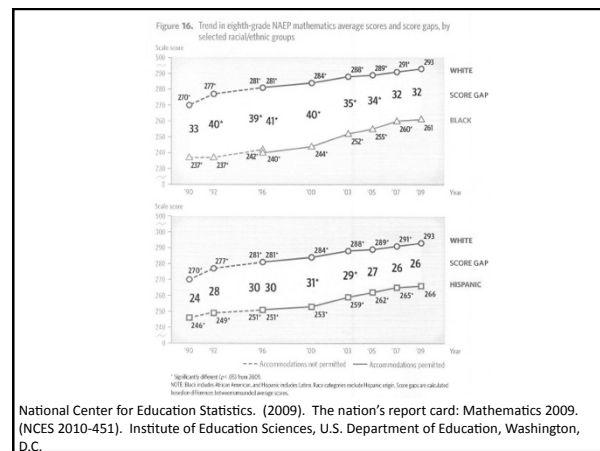
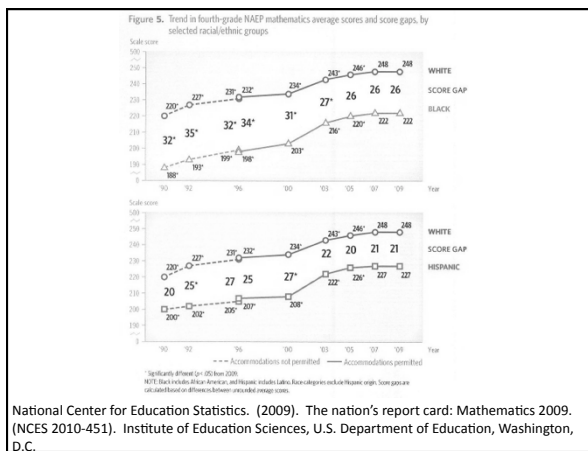
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We have no time to waste.



An equally dangerous gap exists between the average American student and the average students in many industrial countries that we consider collaborators and competitors ... there are millions of students in modern American suburban schools who don't realize how far behind they are.

THOMAS L.
FRIEDMAN
MICHAEL
MANDELBAUM

THAT USED
TO BE US

Friedman, T. L., & Mandelbaum, M. (2011). *That used to be us: How America fell behind in the world it invented and how we can come back*. New York: Farrar, Straus and Giroux.

We Know What Makes a Difference

Despite ongoing hand-wringing about the persistence of the achievement gap, much is known about critical components of schools that make a difference in achievement.

Darling-Hammond, L. (2006). 2006 DeWitt Wallace-Reader's Digest Distinguished Lecture – Securing the right to learn: Policy and practice for powerful teaching and learning. *Educational Researcher*, 35(7), 13-24.

We Know What Makes a Difference

[1] These include the quality of teachers and teaching;

[2] access to challenging curriculum, which ultimately determines a greater quotient of students' achievement than their initial ability levels; and

[3] schools and classes that are organized so that students are well known and well supported.

Darling-Hammond, L. (2006). 2006 DeWitt Wallace-Reader's Digest Distinguished Lecture – Securing the right to learn: Policy and practice for powerful teaching and learning. *Educational Researcher*, 35(7), 13-24.

What Does the Research Tell Us About A Challenging Curriculum?

A² = Alignment & Access

The Proficiency Illusion

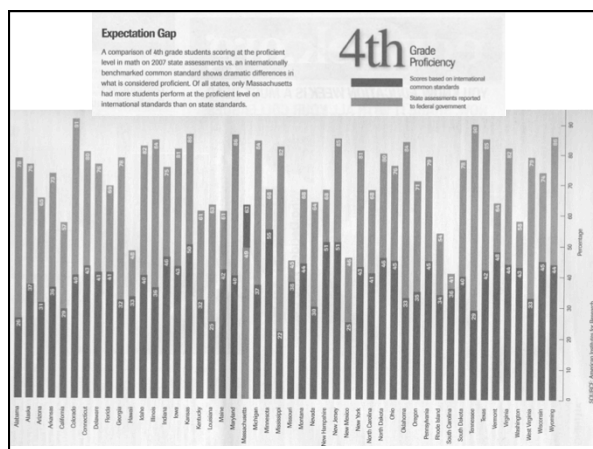
Throughout the United States there is a large discrepancy between the percentages of students achieving proficiency in both mathematics and reading on state accountability tests and those judged proficient on the National Assessment of Educational Progress.

National Center for Education Statistics. (2007). Mapping 2005 Proficiency Standards onto the NAEP Scales (NCES 2007-482). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Common Core and Cognitive Demand

The Common Core State Standards for Mathematics represent a shift toward higher levels of cognitive demand than are currently represented in state standards ... the CCSS emphasize the cognitive demand category “demonstrate understanding” more than state standards do ... and twice the emphasis on “solve nonroutine problems” than state standards do.

Porter, A., McMaken, J., Hwang, J., & Yang, R. (2011). Common core standards: The new U.S. intended curriculum. *Educational Researcher*, 40(3), 103-116.



Opportunity to Learn

Opportunity to learn is widely considered the single most important predictor of student achievement. Defined by the National Research Council as “circumstances that allow students to engage in and spend time on academic tasks ...” (p. 333).



National Research Council. (2001). Adding it up: Helping children learn mathematics. J. Kilpatrick, J. Swafford, & B. Findell (Eds.). Mathematics Learning Study Committee, Center for Education, Division of Behavioral and Social Sciences and Education. Washington, D.C.: National Academy Press.

**The Common Core states that
“mathematical understanding and
procedural skill are equally important,”
but stresses conceptual understanding
of key ideas and organizing principles,
to structure essential big ideas.**



Common Core State Standards Initiative (CCSSI). Common Core State Standards for Mathematics. Common Core State Standards (College- and Career-Readiness Standards and K-12 Standards in English Language Arts and Math). Washington, D.C.: National Governors Association Center for Best Practices and the Council of Chief State School Officers, 2010. <http://www.corestandards.org>.

Different Opportunities for Different Students

The learning opportunities provided for low-ability, average-ability, and high ability-grouped classrooms are hierarchically different. Students in these different groups are offered very different tasks, curriculum, and instruction.

Boaler, J., William, D., & Brown, M. (2000). Students' experiences of ability grouping – disaffection, polarisation and the construction of failure. *British Educational Research Journal*, 26(5), 631-648.

Different Expectations with Respect to Cognitive Demand [Mathematical Practices] for Different Groups of Students

Students in high-track classes typically have access to “high-status” mathematics knowledge (ideas and concepts), whereas students in low-track classes tend to repeat the same basic computational skills year after year.



Tate, W., & Rousseau, C. (2002). Access and opportunity: The political and social context of mathematics education. In L. English (Ed.), *Handbook of International Research in Mathematics Education* (pp. 271-299). Mahwah, NJ: Lawrence Erlbaum Associates.

Quality Teaching Planning for Instruction Focused on the Mathematical Practices

***The Quality of an Education System
Cannot Exceed the Quality of Its
Teachers***



Barber, M., & Mourshed, M. (2007). *How the world's best performing school systems come out on top*. www.mckinsey.com/client/service/socialsector/pdf/worlds_school_systems_final.pdf

Instruction Matters

Teaching has 6 to 10 times as much impact on achievement as all other factors combined. Numerous studies demonstrate that two teachers working with the same socioeconomic population can achieve starkly different results on the same test .. Just three years of effective teaching accounts on average for an improvement of 35 to 50 percentile points.



Schmoker, M. (2006). *Results now: How we can achieve unprecedented improvements in teaching and learning*. Alexandria, VA: Association for Supervision and Curriculum Development.

Teacher Effects

In the United States, the classroom effect appears to be at least four times the size of the school effect ... it doesn't matter very much which school you go to, but it matters very much which classrooms you're in.

William, D. (2011). *Embedded formative assessment*. Bloomington, IN: Solution Tree Press.

Effective Instruction

Research on effective teaching has not suggested a direct association between a single method of teaching and a resulting goal ... Research points to ... certain features of instruction that result in improved student learning.

Hiebert, J., & Grouws, D. A. (2006). *Research analysis: Which instructional methods are most effective?* Reston, VA: National Council of Teachers of Mathematics.

Some Features, or Mathematical Practices, of Effective Instruction – T²

Tasks

- Conceptual Engagement & Productive Struggle

Talk

- Mathematical Discourse

Conceptually Engaging Tasks are Atypical

Typical classroom mathematics teaching in the United States tends not to use challenging tasks, nor to promote students' thinking about and engagement with mathematical ideas, and thus fails to help students develop understanding of the mathematics they are learning.

Silver, E. (2010). Examining what teachers do when they display their best practice: Teaching mathematics for understanding. *Journal of Mathematics Education at Teachers College*, 1(1), 1-6.

High-Demand Tasks Are Tasks that Engage Students with the Mathematical Practices

Mathematical Practices

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COMMON CORE STATE STANDARDS for

Mathematics

Common Core State Standards Initiative (CCSSI). Common Core State Standards for Mathematics. Common Core State Standards (College- and Career-Readiness Standards and K-12 Standards in English Language Arts and Math). Washington, D.C.: National Governors Association Center for Best Practices and the Council of Chief State School Officers, 2010. <http://www.corestandards.org>.

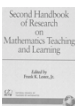
Even More Concerning: The Use of Mathematical Tasks in the United States is Unique

... [A] key difference between instruction in the United States and other countries is the way teachers and students work on problems as a lesson unfolds. Tasks in the United States are rarely enacted at a high level of cognitive demand.

Stigler, J. W., & Hiebert, J. (2004). Improving mathematics teaching. *Educational Leadership*, 61(5), 12-16.

We Don't Emphasize Perseverance (MP 1)

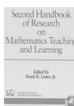
... [S]tudents often urge the teacher to make mathematical tasks more explicit by breaking them down into smaller steps, specifying exact procedures to be followed, or actually doing parts of tasks. Should the teacher succumb to such requests, the ... sense-making aspects of the task are reduced or eliminated, thereby robbing students of the opportunity to develop meaningful mathematical understandings.



Stein, M.K., Remillard, J., & Smith, M.S. (2007). How curriculum influences student learning. In F. Lester (Ed.), *Second Handbook of Research on Mathematics Teaching and Learning* (pp. 319-370). Charlotte, NC: Information Age Publishing.

Productive Struggle = MP 1

Struggle does not mean needless frustration or extreme levels of challenge created by nonsensical or overly difficult problems. It means that students expend effort to make sense of mathematics, to figure something out that is not immediately apparent ... It means the opposite of simply being presented information to be memorized or being asked only to practice what has been demonstrated.



Hiebert, J., & Grouws, D. A. (2007). The effects of classroom mathematics teaching on students' learning. In F. K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning*. Charlotte, NC: Information Age Publishing

Perseverance with Cognitively Demanding Tasks Matters

The level of demand associated with the curriculum (intended and enacted) is related to the gain in mathematics achievement at the classroom level even after controlling for the social class background both at the individual student and classroom levels as well as for teacher subject matter knowledge.

Schmidt, W. H., Cogan, L. S., Houang, R. T., & McKnight, C. C. (2011). Content coverage differences across districts/states: A persisting challenge for U.S. education policy. *American Journal of Education*, 117(3), 399-427.

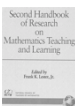
The Importance of Mathematical Practice 1 (Perseverance)

The greatest student learning gains occur in classrooms in which the high-level cognitive demands of mathematical tasks are consistently maintained throughout the instructional episode ...

Boaler, J., & Staples, M. (2008). Creating mathematical futures through an equitable teaching approach: The case of Rillsdale School. *Teachers College Record*, 110, 608-645.

Supporting Perseverance by Emphasizing Mathematical Practices 2 and 3

Teachers' questions play a central role to the outcome of a lesson. Asking questions that scaffold or support students' continued engagement with a task and that press students to explain and justify their thinking are key to sustaining the cognitive demands of mathematical tasks ...



Stein, M.K., Remillard, J., & Smith, M.S. (2007). How curriculum influences student learning. In F. K. Lester (Ed.), *Second handbook of research on mathematics teaching and learning*. Charlotte, NC: Information Age Publishing.

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Common Core State Standards Initiative (CCSSI). Common Core State Standards for Mathematics. Common Core State Standards (College- and Career-Readiness Standards and K-12 Standards in English Language Arts and Math). Washington, D.C.: National Governors' Association Center for Best Practices and the Council of Chief State School Officers, 2010. <http://www.corestandards.org>.

Discussions that focus on cognitively challenging mathematical tasks [tasks that embed the Mathematical Practices], namely, those that promote thinking, reasoning, and problem solving, are a primary mechanism for promoting conceptual understanding of mathematics.

Smith, M.S., Hughes, E. K., Engle, R. A., & Stein, M. K. (2009). Orchestrating discussions. *Mathematics Teaching in Middle School*, 14(9), 548-556.

School Organization to Support All Learners (and Teachers)

Typical Reaction with Struggling Students:

Slow It Down (don't cover it all) or Race Through It (don't cover it well)

Research indicates that when slower students are allowed enough time to master content, they become almost like top students. The problem is that it can take up to five times as long for slower students to master content as faster students.



Usiskin, Z. (2007). The case of the University of Chicago school mathematics project – secondary component. In C. R. Hirsch (Ed.), *Perspectives on the design and development of school mathematics curricula* (173-182). Reston, VA: NCTM.

Educide by the Low-Slow Group

Too often, schools serving large populations of minority students emphasize “slowing down” or providing less mathematics content, rather than providing more challenging content.

Walker, E. N. (2007). Why aren't more minorities taking advanced math? *Educational Leadership*, 65(3), 48-53.

Educide by the Low-Slow Group

Low expectations often result in self-fulfilling prophecies. Once placed in the low tracks, it is very difficult for students to move to a higher track.

Flores, A. (2008). The opportunity gap. *TODOS Research Monograph: Promoting High Participation and Success in Mathematics by Hispanic Students: Examining Opportunities and Probing Promising Practices*, 1(1), 1-18.

How Do We Cover it All and Cover it Well with All Students?

Based on its review of research, the Panel recommends regular use of formative assessment, particularly for students in elementary grades ... for struggling students, frequent (e.g., weekly or biweekly) use of these assessments appears to be optimal, so that instruction can be adapted based on student progress ...



National Mathematics Advisory Panel. (2008). *Foundations for Success: The Final Report of the National Mathematics Advisory Panel*. U.S. Department of Education: Washington, DC.

Instructional Interventions that Make a Difference

Frequent monitoring (at least weekly) of student progress.

Results of frequent assessment are used to form small groups of students for instruction, practice, and reinforcement in the skills and concepts with which they are struggling. Small group support takes place in addition to whole class instruction.



Baker, S., & Gersten, R., & Lee, D. (2002). A synthesis of empirical research on teaching mathematics to low-achieving students. *The Elementary School Journal*, 103(1), 51-73.

“Level Up” and Accelerate

A longitudinal study of over 1,000 low-achieving and at-risk 6-8 grade students found that students placed in heterogeneous “universal acceleration” courses with “workshop” support had greater gains in achievement and continued to enroll in upper level math courses at greater rates than those placed in traditional remedial courses that slowed down instruction.

Burris, C.C., Heubert, J.P., & Levin, H.M. (2006). Accelerating mathematics achievement using heterogeneous grouping. *American Educational Research Journal*, 43(1), 105-136.

Time Must Become the Variable, Not Learning

Time and support must become variables. Some students will require more time to learn, and so the school must develop strategies to provide students with that time during the school day.



DuFour, R., DuFour, R., Eaker, R., & Karhanek, G.. (2004). *Whatever it takes: How professional learning communities respond when kids don't learn.* Bloomington, IN: National Education Service. p. 35.

Doing More of Less (Cultural Resistance)

One of the characteristics of the most effective schools is their willingness to declare that some things are more important than others; they are willing to abandon some less important content so as to be able to have enough time dedicated to those areas that are valued most.

Lezotte, L. W. (1991). *Correlates of effective schools: The first and second generation.* Okemos, MI: Effective Schools Products.

Focus on What is Most Important Across Subjects

All of the world's top systems place a strong focus on numeracy and literacy in the early years based, in part, on substantial research evidence which shows that early ability in core skills is strongly correlated with a range of future outcomes.



Barber, M., & Mourshed, M. (2007). How the world's best performing school systems come out on top. www.mckinsey.com/clientservice/socialsector/pdf/worlds_school_systems_final.pdf

Primary Lesson Hours in a Year in the Japanese Curriculum

	Grade 1	Grade 2
Math	114	155
Japanese (Reading)	272	280
Science	0	0
Social Studies	0	0
Integrated Studies	0	0
Music	68	70
Art	68	70
PE	90	90



Yoshikawa, S. (2008). Education ministry perspectives on mathematics curriculum in Japan. In Mathematics curriculum in Pacific rim countries – China, Japan, Korea, and Singapore, edited by Z. Usiskin and E. Willmore, pp. 9-22. Charlotte, NC: Information Age Publishing.

Early Intervention

There is ample evidence that achievement trajectories are quite stable as children begin middle school ... by the end of third grade school achievement over the long term is highly predictable.

Pianta, R. C., Belsky, J., Vandergrift, N., Houts, R., & Morrison, F. J. (2008). Classroom effects on children's achievement trajectories in elementary school. *American Educational Research Journal*, 45(2), 365-397.

Addressing the Culture and Supporting Teachers as they Implement the Mathematical Practices

Change is Hard

The most likely reason for the stability of teaching practices over time is that teaching is a cultural activity and cultural activities, by their very nature, are highly resistant to change.

Stigler, J. W., & Thompson, B. J. (2009). Thoughts on creating, accumulating, and utilizing shareable knowledge to improve teaching. *The Elementary School Journal*, 109(5), 442-457.

Old Practices are a Cultural Trap

Cultural routines evolve over time to enable adaptation to the environment. However, sometimes the environment changes, and yet, the cultural routine persists, even if it is now highly maladaptive. It may be that mathematics instruction is an example of a cultural trap: routines that may have been adaptive a century ago appear to have persisted, even when it is clear that they are not accomplishing the goals we have for mathematics education.

Stigler, J. W., & Thompson, B. J. (2009). Thoughts on creating, accumulating, and utilizing shareable knowledge to improve teaching. *The Elementary School Journal*, 109(5), 442-457.

Supporting Teachers to Improve Instructional Consistency

One of the most significant problems with mathematics education in the United States is that it is too inconsistent from classroom to classroom, school to school, and district to district.

Morris, A. K., & Hiebert, J. (2011). Creating shared instructional products: An alternative approach to improving teaching. *Educational Researcher*, 40(1), 5-14.

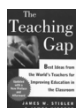
We Must Move Beyond Pockets of Excellence

Teachers working alone in their classrooms develop inconsistencies in instructional practices and rigor and create inequity in student learning experiences.

Ferrini-Mundy, J., Graham, K., Johnson, L., & Mills, G. (1998). *Making change in mathematics education: Learning from the field*. Reston, VA: National Council of Teachers of Mathematics.

The Importance of Professional Learning Communities (PLCs) as a Vehicle to Improve Consistency in Instructional Quality

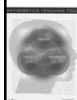
Teachers have a professional responsibility to participate in group decision making to improve the art and practice of teaching. One of the most powerful forums for teacher improvement is involvement in a professional learning community.



Stigler, J. W., & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom*. New York: The Free Press.

Professional Learning Focused On Embedding the Mathematical Practices into Daily Instruction

The essential factor in growth and improvement in teaching is lesson preparation and the analysis of lesson outcomes both during and after each lesson.



NCTM. (2007). *Mathematics teaching today: Improving practice, improving student learning*. Reston, VA: NCTM.

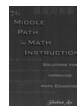
The Importance of Planning

Although effective teaching likely requires both skillful inside-the-classroom routines and thoughtful outside-the-classroom planning and evaluation, we believe that improvements in teaching rest, in part, on systematic and intentional application of outside-the-classroom skills.

Morris, A. K., Hiebert, J., & Spitzer, S. M. (2009). Mathematical knowledge for teaching in planning and evaluating instruction: What can preservice teachers learn? *Journal for Research in Mathematics Education*, 40, 491-529.

The Importance of Structured Lesson Planning

Chinese teachers' lesson plans are detailed teaching notes, which include the objectives, content, key points, difficult points, and procedures. The teaching procedure is the main body of the lesson plan, which includes review and introduction, the new lesson, the types of questions to be asked, examples given, problems for practice, and a summary. Usually it takes at least two to five pages to write a plan for one lesson.



Shuhua, A. (2004). *The middle path in math instruction: Solutions for improving math education*. Lanham, MD: ScarescowEducation.

But Not for Every Lesson

Intensive lesson planning is not only a high-leverage strategy to effect change in teachers' practice, it is also an effective strategy to prevent the degradation of collaborative teacher learning team discussions into mere story-swapping and the sharing of materials ... the lack of time to devote this careful planning and reflection to all lessons cannot be used as an excuse to never collaboratively learn, plan, and reflect on the effectiveness of key lessons.

Kanold, T., & Larson, M. R. (in press). *The CCSS for Mathematics in a PLC: Leader's Guide*. Bloomington, IN: Solution Tree Press.

We Must Address Cultural Resistance to Change: Parents

Parents need to hold their children to the highest standards that push them out of their comfort zones ... When children come to school knowing their parents have high expectations, it makes everything a teacher is trying to do easier and more effective.

THOMAS L.
FRIEDMAN
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THAT USED
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Friedman, T. L., & Mandelbaum, M. (2011). *That used to be us: How America fell behind in the world it invented and how we can come back*. New York: Farrar, Straus and Giroux.

Cultural Resistance from Students

Children are exceptions to the country's work ethic



THOMAS L.
FRIEDMAN
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THAT USED
TO BE US

At precisely the moment when we need more education to bring the bottom up to average and the American average up to the global peaks, our students are spending more time texting and gaming and less time than ever studying and doing homework. Unless we get them to spend the time they need to master a subject, all the teacher training in the world will go for naught.

Friedman, T. L., & Mandelbaum, M. (2011). *That used to be us: How America fell behind in the world it invented and how we can come back*. New York: Farrar, Straus and Giroux.

Perhaps We Don't Have an "Achievement" Gap

When African American and White students complete the same mathematics courses, the differences in average achievement gains are statistically insignificant. Additionally, there are no statistically significant differences in achievement between high- and low-SES students who complete the same courses.

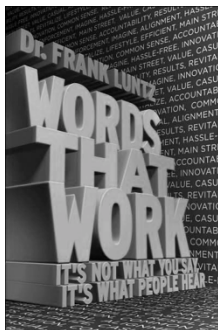
Hoffer, T. B., Rasinski, K. A., & Moore, W. (1995). Social background differences in high school mathematics and science coursetaking and achievement. Washington, DC: U.S. Department of Education.

The Importance of Persisting in the Curriculum

Of all pre-college curricula, the highest level of mathematics in secondary school has the strongest continuing influence on bachelor's degree completion. Finishing a course beyond Algebra 2 more than doubles the odds that a student who enters post-secondary education will complete a bachelor's degree.

Adelman, C. (2006). Answers in the toolbox: academic intensity, attendance patterns, and bachelor's degree attainment. (Office of Educational Research and Improvement Publication.) <http://www.ed.gov/pubs/Toolbox/Title.html>

It's Not What You Say, It's What People Hear



**Not “treatment”
but
“prevention” or
“wellness”**

**Not “drilling for
oil” but “energy
exploration”**

Luntz, F. (2007). Words that work: It's not what you say, it's what people hear. New York: Hyperion.

It's Not What You Say, It's What People Hear

~~**Achievement Gap**~~

Instructional Gap:

**Within Schools
Across Schools
Cultural Expectations**

A Question of Will

Our failure to improve schools in the last few decades isn't because we lack funding or don't know how to improve schools. What we lack is the "will and persistence" to implement what we already know.

Odden, A. (2009, December 9). We know how to turn schools around – we just haven't done it. *Education Week*, 22(43), 64.

The Future of the Society we Live in Depends More than Ever on Reaching All Students

Because the economy can no longer absorb unskilled workers at decent wages, lack of education is increasingly linked to crime and welfare dependency ...no society in a knowledge-based world can long prosper without supporting a thinking education for all its people. A societal infrastructure disintegrates, both economically and socially, when large numbers of individuals cannot become productive citizens.

Darling-Hammond, L. (2006). 2006 DeWitt Wallace-Reader's Digest Distinguished Lecture – Securing the right to learn: Policy and practice for powerful teaching and learning. *Educational Researcher*, 35(7), 13-24.

Will the CCSSM Matter in 10 Years? Will it help close our instructional gaps?

Yes, but only if

- We focus first and foremost on the Mathematical Practices, i.e. if we make this reform effort about instruction and not just content.

Will the CCSSM Matter in 10 Years? Will it help close our instructional gaps?

Yes, but only if

- If we put structures in place to support all students in achieving the goals of the CCSSM.

Will the CCSSM Matter in 10 Years? Will it help close our instructional gaps?

Yes, but only if

- If we put structures in place in schools to support all teachers in improving their instruction by focusing their collaborative planning efforts on embedding the Mathematical Practices in their instruction.

Will the CCSSM Matter in 10 Years? Will it help close our instructional gaps?

Yes, but only if

- If we address the cultural resistance to change, both within schools and in our culture at large.

The CCSSM May Be Our Last Opportunity to Get it Right

The unprecedented adoption of the same set of mathematics standards by nearly all states ... provides the opportunity for educators nationwide to press the “reset” button on mathematics education. Collectively, we have the opportunity to re-dedicate ourselves to ensuring that all students are provided with exemplary teaching and learning and access to the supports necessary to guarantee that all students have the opportunity to be successful.



Larson, M. R. (2011). *Administrator's guide: Interpreting the Common Core State Standards to improve mathematics education*. Reston, VA: NCTM.

We want kids to think critically, to read, to create, but not simply because those things will get them jobs and money, but because a society made up of such people will be a better society. People will make more informed decisions, invent things that help the world rather than harm it, and at least some of the time, put the interests of others ahead of self-interest.

Susan Engel, Williams College